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Kwan-Gett

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[54] COLLAPSIBLE VESSEL SLEEVE IMPLANT

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[52] **U.S. Cl.** **623/1**; 606/153; 606/191; 604/96; 604/264; 604/280

[58] **Field of Search** 604/93-96, 604/280-282, 264; 606/151, 153, 191, 192; 623/1, 10

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[57] **ABSTRACT**

An implantable collapsible tubular sleeve for implanting inside a live tissue fluid vessel and system, the sleeve ends each including a collapsible circular stent or annular balloon affixed thereto. A pair of linear stiffeners are each attached to opposite sleeve exterior sides, in longitudinal orientation, and the sleeve is adapted to be collapsed and maintained in that collapsed state to be fed along the patients's femoral artery and into position within an abdominal or throacic aorta, spanning an aortic aneurysm. A capsule band is wound around to maintain the collapsed sleeve for travel to the aneurysm, and it is maneuvered through the femoral artery on a guide wire by means of a catheter. At the aneurysm the capsule band is removed and the sleeve released, forming its cylindrical configuration. The circular stents or annular balloons at the sleeve ends can be adjusted to be perpendicular to the aorta axis and are urged into the graft wall into sealing engagement with the aorta lumen. After positioning, sleeve implant may be stabilized utilizing a tacking system operated from within the graft, to drive barbed ends of tacks through the sleeve inner wall and into the artery wall. The tacking system is operated by pulling an erecting ball between flexing arms, the arms pivoting outwardly to drive barbed ended tack releasably mounted thereto through the sleeve to lodge in the aorta wall, which barbed end tacks are then released from the flexing arms.

29 Claims, 3 Drawing Sheets